

**CLAIMS:**

1. A system for wireless and wired servicing of audiovisual and data networking communications, the system comprising:

a network gateway that services communications within a network;

at least one user playback end device communicatively coupled to the network gateway;

a content and transmission media aware network attached storage device (NAS); and

wherein the NAS services communications through the gateway to the at least one user playback end device in the network from content stored in the NAS at a data rate sufficient to enable real-time playback of audiovisual programming at an expected quality level.

2. The system of claim 1, wherein the NAS read-protects audiovisual information that it stores.

3. The system of claim 1, wherein in servicing communications between the gateway and the NAS at a data rate sufficient to enable real-time playback of audiovisual programming stored on the NAS, wherein the NAS employs classification of service operations to prioritize communications according to file type and evaluates, among other types whether the file is a PVR file, an MPG file, an AVI file, a WMV file, an MP3 file, a WMA file, an AAC file, or a bulk data file.

4. The system of claim 3, wherein in servicing communications between the gateway and the NAS at a data rate sufficient to enable real-time playback of audiovisual programming

stored on the NAS, the gateway employs bandwidth allocation operations based upon the classification of service to provide sufficient data throughput for the communications.

5        5.        The system of claim 1 wherein the NAS determines end-to-end quality of service for playback of the audiovisual programming stored on the NAS by evaluating a content creation source, a transmission media, end device playback technology and media type.

10       6.       The system of claim 5 wherein the NAS defines a hierarchy of content creation sources including professionally recorded and distributed materials, specified media resolution characteristics, downloaded materials, and personal recording through a home recording device.

15       7.       The system of claim 5 wherein the NAS defines a hierarchy of transmission media including data packet networks, in-structure dedicated wired coupling, wireless communication links and further defines an associated bandwidth for each.

20       8.       The system of claim 5 wherein the NAS defines a hierarchy of end device playback technology including device type including standard display television, high definition television, portable digital video recorder, personal computer monitor, wired high fidelity sound system, wireless headphones, wired headphones and handheld display devices.

25       9.       The system of claim 8 wherein the hierarchy of end device playback technology further includes associated display resolution parameters.

10. The system of claim 1 wherein the NAS evaluates digital rights management parameters to evaluate whether a public key infrastructure (PKI) code is enabling and whether the end device is an authorized device for the PKI code.

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11. The system of claim 1 wherein the NAS evaluates a hierarchy of content creation sources, a hierarchy of transmission media, and a hierarchy of end device playback technology along with specified quality of service requirements as a part of determining allocated bandwidth and transmission priority.

12. A content and transmission media aware network attached storage device (NAS) system for servicing communications through the gateway to the end device in the network from content stored in the NAS at a data rate sufficient to enable real-time playback of audiovisual programming at an expected quality level, the NAS comprising:

5 a two-part digital recording and playback system further including:

a first part for storing audiovisual programming in a proprietary and non-standard digital media format to preclude the digital media being played by known technology without authorization by the NAS; and

10 a second part to enable real-time playback of audiovisual programming stored on the NAS, wherein the NAS employs Quality of Service (QoS) operations to prioritize communications;

wherein the first part of the NAS system determines end-to-end quality of service for playback of the audiovisual programming stored on the NAS by evaluating a content creation source, a transmission media, end device playback technology and media type;

15 wherein the first part of the NAS evaluates a hierarchy of content creation sources, a hierarchy of transmission media, and a hierarchy of end device playback technology along with specified quality of service requirements as a part of determining allocated bandwidth and transmission priority; and

20 wherein the second part of the NAS system stores received audiovisual programming for playback on a playback device.

13. The content and transmission media aware NAS system of claim 12 wherein the NAS system defines the hierarchy of content creation sources including professionally recorded and distributed materials, specified media resolution characteristics, downloaded materials, and personal recording through a home recording device.

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14. The content and transmission media aware NAS system of claim 13 wherein the first part defines the hierarchy of transmission media including data packet networks, in-structure dedicated wired coupling, wireless communication links and further defines an associated bandwidth for each.

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15. The content and transmission media aware NAS system of claim 14 wherein the first part defines the hierarchy of end device playback technology including device type including standard display television, high definition television, portable digital video recorder, personal computer monitor, wired high fidelity sound system, wireless headphones, wired headphones and handheld display devices.

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16. The content and transmission media aware NAS system of claim 15 wherein the hierarchy of end device playback technology further includes associated display resolution parameters.

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17. The content and transmission media aware NAS system of claim 13 wherein the NAS evaluates digital rights management parameters to evaluate whether a public key infrastructure (PKI) code is enabling and whether the end device is an authorized device for the PKI code.

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18. The content and transmission media aware NAS system of claim 13 wherein the NAS utilizes a proprietary formatting system to preclude reading of the stored materials by other devices.

19. The content and transmission media aware NAS system of claim 13 wherein the NAS evaluates previous playback to prevent the same file from be played by more than one device at any time including the NAS only producing to one device at a time.

20. The content and transmission media aware NAS system of claim 13 wherein the NAS is operable to produce a subsequent copy to any playback device only after determining that a previously produced copy has been, removed, deleted, or destroyed.

21. The content and transmission media aware NAS system of claim 13 wherein the NAS is operable delete a file copy in conjunction with producing the file to another device if the other device has file storage capacity.

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22. The content and transmission media aware NAS system of claim 13 wherein the NAS is operable produce the media or files to another device having recording capacity only if the receiving device also has capacity to regulate usage that at least comports with known digital rights management rules.

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23. The content and transmission media aware NAS system of claim 13 wherein the NAS is operable to only produce files to a receiving device having capacity similar to the NAS for regulating usage and copying.

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24. The content and transmission media aware NAS system of claim 13 wherein the NAS is operable prevent files from being streamed or played outside of a home network boundary.

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25. The content and transmission media aware NAS system of claim 13 wherein the NAS is operable register the ripping or copying status into a central repository to disable user ripping the same content again in another network unless the first copy is deleted from the NAS.

26. A method for producing audiovisual programming in a digital media format to a remote playback device in a content and transmission media aware network attached storage device (NAS) for servicing communications through a gateway to an end device in the network from content stored in the NAS, comprising:

5 providing real time playback of audiovisual programming stored on the NAS and employing Quality of Service (QoS) operations to prioritize communications;

determining end-to-end quality of service for playback of the audiovisual programming stored on the NAS by evaluating a content creation source, a transmission media, end device playback technology and media type;

10 evaluating a hierarchy of content creation sources, a hierarchy of transmission media, and a hierarchy of end device playback technology along with specified quality of service requirements as a part of determining allocated bandwidth and transmission priority; and

transmitting the audiovisual programming at a data rate sufficient to enable real-time playback of audiovisual programming at an expected quality level.

15 27. The method of claim 26 further including defining the hierarchy of content creation sources including professionally recorded and distributed materials, specified media resolution characteristics, downloaded materials, and personal recording through a home recording device.



28. The method of claim 27 further including defining the hierarchy of transmission media including data packet networks, in-structure dedicated wired coupling, wireless communication links and further defining an associated bandwidth for each.

5           29. The method of claim 28 further including defining the hierarchy of end device playback technology including device type including standard display television, high definition television, portable digital video recorder, personal computer monitor, wired high fidelity sound system, wireless headphones, wired headphones and handheld display devices.

10           30. The method of claim 29 wherein the hierarchy of end device playback technology further includes associated display resolution parameters.

15           31. The method of claim 26 further including evaluating digital rights management parameters to determine whether a public key infrastructure (PKI) code is enabling and whether the end device is an authorized device for the PKI code.

          32. The method of claim 28 wherein the transmission media includes a home based cable network and wherein the method includes transmitting the audiovisual programming over the home based cable network.

33. The method of claim 28 wherein the transmission media includes at least one of a Bluetooth wireless network and an IEEE 802.11 standard protocol wireless network and wherein the method includes transmitting the audiovisual programming over one of the Bluetooth and 802.11 standard protocol wireless networks.

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34. The method of claim 28 further including storing the audiovisual programming in a proprietary and non-standard format to preclude unauthorized access wherein the proprietary and non-standard format is not decipherable by known devices that read digital media.

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35. The method of claim 34 further including, as a part of producing audiovisual programming in a digital media format, reconstructing the audiovisual programming into a non-proprietary and standard format.

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36. The method of claim 26 further including providing port based bandwidth priority wherein a device producing digital media on a first port is given priority over a device producing digital media on a second port.

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37. The method of claim 26 further including evaluating digital rights management rules to control destination usage including a PKI code for the remote playback device and further evaluating capability of the end user device.

38. The method of claim 37 wherein the NAS only produces audiovisual programming having copy restrictions to a PKI enabled device that does not have copying capability for making permanent copies of the audiovisual programming.

5           39. The method of claim 37 wherein the NAS evaluates safety of a transmission link and, based upon the evaluated safety of the transmission link, provides a specified amount of protection for audiovisual programming which is to be propagated over the transmission link.